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Article

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TOOLS FOR CONSUMER RIGHTS PROTECTION IN THE PREDICTION OF ELECTRONIC VIRTUAL MARKET AND TECHNOLOGICAL CHANGES

Mikuláš Gangur[1] and Miroslav Plevný[2*]
[1) 2)] *University of West Bohemia in Pilsen, Faculty of Economics, Czech Republic*

Abstract

Electronic virtual markets can serve as an alternative tool for collecting information that is spread among numerous experts. This is the principal market functionality from the operators' point of view. On the other hand it is profits that are the main interest of the market participants. What they expect from the market is liquidity as high as possible and the opportunity for unrestricted trading. Both the operator and the electronic market participant can be considered consumers of this particular market with reference to the requirements for the accuracy of its outputs but also for the market liquidity. Both the above mentioned groups of consumers (the operators and the participants themselves) expect protection of their specific consumer rights, i.e. securing the two above mentioned functionalities of the market. These functionalities of the electronic market are, however, influenced by many factors, among others by participants' activity. The article deals with the motivation tools that may improve the quality of the prediction market. In the prediction electronic virtual market there may be situations in which the commonly used tools for increasing business activities described in the published literature are not significantly effective. For such situations we suggest a new type of motivation incentive consisting in penalizing the individual market participants whose funds are not placed in the market. The functionality of the proposed motivation incentive is presented on the example of the existing data gained from the electronic virtual prediction market which is actively operated.

Keywords: virtual market, prediction market, consumer rights protection, motivation tools, incentive system, inflation, information collection

JEL Classification: C13, C83, O30

Introduction

For more than twenty years electronic virtual markets have belonged among the alternative tools for collecting information spread among numerous experts. Electronic virtual markets are used for the evaluation of the success rate of the assigned forecasts – predictions. Therefore it is also possible to come across the term prediction market (PM). Unlike the

[*] Corresponding author, **Miroslav Plevný** - plevny@kem.zcu.cz

prognoses constructed on the basis of the most varied models, e.g. (Sredl, Soukup and Severova, 2013), (Pantelescu and Ioncica, 2012), this is a speculative market simulating the activity of a stock exchange at which such titles are traded that are related to forecasting a particular event (e.g. Barack Obama will win the presidential elections even for his second term of office) or those related to a value of an estimated parameter (e.g. the percentage of votes won in the parliamentary election by a given political party). The value of titles is given by the extent of confidence of the sellers and buyers in a given event or a value of a parameter. The current market price can be interpreted as an estimate (forecast) of the probability of an event or an estimated value of parameters. This market is also labeled as an information market, decision market, or virtual market.

Prediction markets use mechanisms of classic stock markets on the basis of the information shared by the individual participants of the market by means of the price of shares. The process of trading on PM ascertains and aggregates the true evaluation of an event by the market participants as being reflected in the share price. This ability of PM is based on the hypothesis of the effective markets assuming that all information available at any moment is fully reflected in the share price (Fama, 1991). With regard to this hypothesis the market mechanism is the most effective tool for aggregation of the asymmetrically spread information among the market participants on the competitive markets (Hayek, 1945).

If the market is effective, it enables to aggregate the individual evaluation of traders. In such case the price of a particular share reveals all the information even with regard to the future market output and therefore it may serve as a forecast. The prognoses (such as the predictive market outputs) can be looked upon as a specific product; and, in connection with this, the operators as well as the PM participants, who both take advantage of these prognoses, act as consumers of the PM. Consequently, securing the correct market behavior, i.e. obtaining the most exact prognoses, are the activities that unambiguously protect the interests of these consumers.

PMs enable linking a great number of experts (managers and consumers) who, through the existing virtual network, interact and trade their information and expectations. While an individual trader may be biased or may arrive at a wrong conclusion, the aggregation based on the market mechanism can detect such mistakes and set the “right” price (Surowiecki, 2005). In this way PM can be used as one of the innovative instruments for a sustainable development in business (Szabo, Soltes and Herman, 2013) or in tourism (Stanciulescu and Tirca, 2010).

Why is the prediction market so successful? It is very effective in collecting and aggregating information for the group of traders. It is also based on the hypothesis that a group is cleverer than its cleverest member (Surowiecki, 2003). Traders look for the top quality information. The absence of any hierarchy (markets do not have any vice-presidents) guarantees that no individual person has too much influence.

The principal idea of PM is to link a group of participants (experts) by means of the Internet and let them trade shares on the virtual stock market. The shares represent a “bet” on the final state of a chosen event in the future and the value of the share depends on the fulfillment of the given event. Once the state of the given event is obvious, each share receives the appropriate payment with regard to the fact whether the event did or did not come true. The principal idea of the virtual stock market is the correspondence of the share price of an event with the aggregated expectation of the whole market with regard to the

given event. The participants of the market use the individual expectation of the fulfillment of the given event to deduce an individual estimate (expectation) of the share price related to the given event.

The market participants who buy for a lower price and sell for a higher price are "rewarded" by profit for their trust in the given forecast whose market value grows. Those who buy for a higher price and sell for a lower price pay for the decrease in the trust in the given forecast resulting in the decrease in the price on the market. It is possible to say that the results of the prediction virtual market are as identically accurate as the polls of the other institutions related to the given event and a similar sample of participants. The following institutions may be an example of prediction markets: IntradeTradeSports, The Iowa Electronic Markets, NewsFutures, Bet2Give, Hollywood Stock Exchange, The simExchange, Popular Science Predictions Exchange, Inkling Markets, FT Predict, IdeaWorth.com Futures Market. Hollywood Stock exchange is a virtual market game founded in the year 1996 in which the players buy and sell the shares of movies, actors, directors and other events related to the movie industry. The participants of this market were right in their forecasts in 32 out of 40 nominations for the main Oscar categories for the year 2006 and for 7 out of 8 Oscar winners in the main categories. The participants of other virtual markets also "decided" about the result of the war in Iraq and about the fate of Saddam Hussein (Surowiecki, 2003).

This paper focuses mainly on the proposal and implementation of motivation tools and incentive tools that support the market trading, i.e. increase trading volume, trading frequency, and thus the liquidity of the market. All these activities ensure the correct market behavior and consequently protect the interests of the market participants.

The first section provides a theoretical background and literature review with respect to the development of PM applications, drawbacks and advantages of PM, and the structure of the prediction market. Of this market structure the importance of motivation and incentive system is being shown. The next section discusses the existing motivation tools and furthermore, the proposal and the application of PM inflation as a possible motivation tool are described. Impact of proposed inflation is presented in the next section, which describes the application of this inflation in the experimental PM *FreeMarket*.

1. Theoretical background and literature review

PMs were applied for the first time in the form of the political stock exchange to forecast the results of the presidential elections in the US - Bush vs. Dukakis in the year 1988. This stock exchange was launched as Iowa Electronic Market (IEM) (Forsythe et al., 1992). The description of the principles of prediction markets also appears in the article of R. Hanson (1992).

1.1 The development of PM applications

The first electronic virtual markets are used mainly for the prediction of political events (elections results). The most famous example is the above mentioned Iowa Electronic Markets (Forsythe et al., 1992, 1994), (Forsythe, Rietz and Ross, 1999), (Berg, Forsythe and Rietz, 1996, 1997). Since the year 1988 this market has forecast the results of the American presidential elections more accurately than the traditional polls in 75% of cases (Surowiecki, 2003).

The political elections markets were operated also in other countries - in Germany (Beckmann and Werding, 1996), (Kuon, 1991), in Austria (Ortner, Stepan and Zechner, 1995) and in Sweden (Bohm and Sonnegard, 1999) or in Canada (Antweiler and Ross, 1998). Hlavacek et al. (2002) and Cahlik et al. (2003) described the use of the prediction markets for the prediction of the elections results in the Czech Republic.

Later PMs were used to solve problems in the entrepreneurial and business area. Ortner (1997, 1998) described the use of prediction markets as a tool of prediction in the Siemens company, Austria. In another case Plott (2000) used another PM for the forecast of the volume of the sales of a new product; Skiera and Spann (2004) used a PM for the forecast of the success of a new product on the market. The issues of using the prediction markets on the markets are dealt with, for example, by Snowberg, Wolfers, and Zitzewitz (2013).

There is even evidence of studies dealing with using PMs in teaching, for example Cali Mortenson and Rahul (2012) in teaching political science courses, or Damnjanovic et al. (2013) in teaching project management. Buckley, Garvey, and McGrath (2011) use the PM principle in teaching the subjects from the field of social science and economics to develop the orientation and decision making processes in a wide range of issues. Passmore, Cebeci, and Baker (2005) use PMs to solve problems related to the development and introduction of innovations in the technology of education.

Apparently the highest benefit in the issue of prediction markets are the studies by Pennock (2004) concerning the principle of the dynamic pari-mutuel markets, the studies by Hanson (2003, 2007) presenting the construction of the combinatorial information markets and using the automatic market creator, and also the above mentioned study about the use of virtual markets for predicting a new product on the market (Skiera and Spann, 2004), the studies by Berg and Rietz (2003) and Wolfers and Zitzewitz (2004, 2006). The summarizing monograph "Information markets: A new way of making decisions" by Hahn and Tetlock (Eds.) (2006) features an excellent guide to the issues of prediction markets and it opens a number of issues and unsolved problems in this area.

According to Tziralis and Tatsiopoulos (2007) the studies on prediction markets can be divided into contributions containing the following topics:

- *The description of the principles of markets functioning* – they contain the description of the PM basics, analyses of various aspects of PM application and the open, not yet dealt with, issues related to PM. Contributions dealing with the possibility of using PM in teaching also belong here.
- *Theoretical studies* – they contain theoretical questions from the field of constructing and modeling PMs and the analysis of their functions, questions from the field of information aggregation, convergence and the qualities of the equilibrium of the information aggregation process. They further contain studies from the field of the analysis and interpretation of prices.
- *Practical applications using principles of the prediction markets* – studies dealing with practical experiments with PMs in the academic or other environs, studies devoted purely to the Iowa Electronic Markets, and studies concerning other political markets in other countries. Applications of PM in sports events, comparing betting markets operating with the real money and play money also belong here.
- *The problems of prediction markets concerning legal regulations* – they deal with the issues of legality and regulative measures connected with the PM activities, the influence of

PM on political decisions and other political issues, PM applications implemented as support for political decisions in the field of international relations and terrorism.

Most studies can be found in the field of practical applications of the PM principles.

1.2 Potential drawbacks and advantages of PM

Some academic research studies concentrated on potential drawbacks in relation with PM functioning. Manski (2006) from Northwestern University published an article in which he attempts, with regard to a number of assumptions, to prove mathematically that these markets with risk neutral traders do not closely correspond with the real probability of the confidence of the market participants unless the probability is close to 0 or 1. Manski recommends direct questioning of a group of respondents who, by means of the probability estimation, reach better results. On the other hand, Gjerstad (2005) showed that not only the distribution of traders' beliefs, but both risk aversion and the unimodal distribution of traders' beliefs significantly affect the equilibrium price. For coefficients of relative risk aversion near those estimated in empirical studies and for plausible belief distributions, the equilibrium price is very near the traders' mean belief.

Wolfers and Zitzewitz (2006) arrived at a similar conclusion together with a data analysis from the market. The practical experience confirmed that the prices on the binary prediction markets (the event comes about or it does not) are closely connected with the frequency of events in the real world (Pennock et al., 2001), (Servan-Schreiber et al., 2004).

There is general understanding among economists and financial experts that prediction markets based on fictitious money are not able to generate valuable forecasts. However, the collected data disprove this (Pennock et al., 2001). The data analysis from Hollywood Stock Exchange and Foresight Exchange showed that the market price forecasts the events in the real world. The comparison of the results of the prediction market with the NFL NewsFutures´ with an equivalent market Tradesports in which the real money was traded showed identical results on both these markets. In this case the use of the real money did not lead to more accurate forecasts (Servan-Schreiber et al., 2004).

The problem of accuracy of PM has been the subject of many research studies. Some studies on the accuracy of PM versus polls and surveys show that PMs are at least as accurate as the traditional polls and surveys, and, in a number of cases, they even outperform them (Chen et al., 2005), (Gruca, Berg and Cipriano, 2005).

1.3 The structure of the prediction market

The proposal of the universal structure of PM can be found, for example, in Skiera and Spann (2004). The creators of the prediction markets must decide about the content of the items in the following three areas:

- **the choice of the forecast target** (forecast; pay function; terms of trading; access: open or closed to the public);
- **the structure of the financial market** (type of auction; time of trading; short-term trading: Yes or No; type of orders; trading fees; limiting positions, limiting prices);
- **the motivation system of the participation in the market and of the incentives to provide relevant information** (structure of a start-up portfolio / subsidies; providing loans; system of incentives; non-monetary awards; use of the real money or play money; time interval; dependence of awards on the activity of the participant).

In the given structure a crucial role, as seen from the point of view of maintaining the appropriate functionality of the predictive market and, at the same time, from the point of view of protecting the rights of the operators and users, i.e. consumers, is played by the third area, i.e. **the motivation system and the scheme of incentives to the market participants.** One of the main functions of PM, aggregation of information and prediction, is conditioned by a sufficient number of active market participants. It can be seen that unlike the "classic" statistical methods of research even a smaller number of respondents may be sufficient. Even though, the quantity of players and their activity is a key factor for the relevancy, topicality and the correctness of the gained information as well as for the accuracy of the examined predictions. A larger group of players assumes a broader scope with regard to the information provided. In the same way, a low level of activity of the participants can negatively influence predictions and these are only decided by a small group with a limited level of information.

2. Motivation tools for the active participation in PM

2.1 The existing motivation tools

The right functionality of a prediction market – the accurate forecast – depends on the number of active market participants, i.e. on the volume of trade. Therefore it is necessary to motivate the market participants to increase their trading activities. In other words, the correct proposal and implementation of all the system of incentives is crucial for the success of all the market. In the history of the prediction markets these problems have been dealt with in various ways.

R. Hanson (2003, 2007) proposed and described an automatic market maker (AMM) which enables the buyer (or, as the case may be, the seller) to trade without the necessity of the online presence of the buyer (or seller) on the market. AMM implements the orders from the participants to buy (or to sell) automatically and it automatically sets the price of the assets. The AMM application includes an important phenomenon of the market scoring rule (MSR) which was for the first time in AMM introduced by Hanson (2007). The construction of MSR is based, among others, on the studies of Matheson and Winkler (1976) and Kidd (1975). The disadvantage of using AMM is the risk of loss of funds that the AMM "pumps" into the system.

The Dynamic Pari-mutuel Market Maker (DPM) is another solution proposed by Pennock (2004). Pari-mutuel represents a system of stakes that only redistributes some withdrawn investments among winners. The principle of DPM links the advantages of the Continuous Double Auction (CDA) and the principle of the pari-mutuel market. This way it removes the disadvantage of the low liquidity CDA and also the problem of the pari-mutuel market which does not enable to respond to the new information by the change of the price (the participants deposit their stakes as a lump sum payment and then they wait for the result – see horse racing betting). The DPM also solves the problem of the risk on the side of the PM operator in case of using AMM. The problem of the low level activity of traders with regard to their absence is also dealt with by the introduction of records and keeping the book orders (BO). This measure also enables asynchronous trading without the necessity of the permanent presence on the market. Linking both the approaches, AMM and BO, is dealt with by the studies of Hibber (2006, 2007).

Several empirical studies have been performed in the field of incentive system research in PM. Decker, Welpe and Ankenbrand (2011) describe motivation factors when applying prediction markets in organizations as a new technical possibility to make use of the beliefs, information and knowledge of their employees for organizational decisions and forecasts. The authors show that the perceived general reciprocity together with the expectations of high rewards is likely to increase the user´s satisfaction. In (Teschner at al., 2011) authors propose incentive schemes and feedback mechanisms to motivate online communities to contribute. They show that a weekly newsletter that acts as a reminder drives the participation. In public goods projects the participation feedback has been found to increase participants' contributions. S. Luckner (2007) studied the impact of different monetary incentives on prediction accuracy in a field experiment. His results show that performance-related payment schemes do not necessarily increase the prediction accuracy. Due to the risk aversion of traders the competitive environment in a rank-order tournament leads to the best results in terms of prediction accuracy. However, the results of these empirical studies don't solve the main problem we identified when using PM, i.e. status quo bias (see below).

2.2 The proposal of *PM inflation* as a tool of motivation for the PM participants

The well-known tools of motivation mentioned in the previous subchapter are, however, not very effective in cases when the virtual market is implemented for the purpose of providing relevant information (prognosis of the future state), but we do not or cannot provide the virtual market participants any financial award for their trading results. This may happen in cases when:

- ***the participant is motivated by a non-monetary award***

and, at the same time

- the necessary ***initial allowance of the start-up points*** reaches or exceeds the limit for gaining this non-monetary award.

In such a case the registration connected with gaining the start-up points allowance may be enough for the participant as it is sufficient for the definitive acquisition of the non-monetary award. Any other activity of his/her is not necessary. Participants endowed with such start portfolio may have a tendency to stick to the initial endowment ("status quo bias") or their willingness to accept greatly exceeds their willingness to pay ("endowment effect") (Kahneman, Knetsch and Thales, 1991). The logical solution of this situation is either to increase the level of the point limit for acquiring the non-monetary award or to decrease the initial allowance of the start-up points.

Both these measures may, however, be counterproductive in some cases. The decrease of the initial allowance of the start-up points may significantly limit the possibility of the participants to get engaged in the PM activities. On the contrary, increasing the level of the point limit for acquiring the non-monetary award may, in some cases, put off a large part of the potential PM participants as they may think this award is difficult to reach. It is, for example, the case of a PM where the motivation effect is based on the assumption that the point limit for acquiring a non-monetary award is achieved by a large (even significantly overall) part of the participants (for example the prize is not expressed by a car for the best player but a promotional bath towel for the majority of the active participants).

In the following subchapter we propose the introduction of an inflation factor that would decrease the value of the free uninvested virtual money (points) on the accounts of the participants as one of the possible motivation tools applicable for the above case.

The inspiration for introducing this motivation tool was the case of the problematic behavior of the electronic virtual prediction market described in the following chapter 3.

The motivation incentive that we are going to call the ***PM inflation*** in the following text is not a classic case of inflation. It is a tool that, in PMs, decreases the value of the free money on the traders´ accounts and makes them invest the free money on the market. The size of the PM inflation depends on the ratio of the free and invested funds and it motivates the participants to invest their free funds into the assets on the market. This way the volume of trades is increased as well as the liquidity of the market and as a consequence the value of the inflation ratio is decreased and this way the participant protects his/her points.

The implemented *PM inflation* decreases the daily nominal value of the free points of the traders. This process is illustrated by the following formula:

$$CM(t+1) = CM(t) * (1 - R_f / 360) \quad (1)$$

where:

- $CM(t)$ – current free points on the participants´ accounts before the adjustment of the inflation for the given period;
- $CM(t+1)$ – points on the participants´ accounts after the adjustment of the inflation for the given period;
- R_f – inflation ratio.

With regard to the described reasons and setting the sources of the PM inflation, the inflation ratio is constructed according to the following formula (2):

$$R_f = \max(0,(TC - TD) / TS - 1) \quad (2)$$

where:

- TC – total volume of the free funds on all accounts;
- TD – total demand = the number of demanded shares * the buying price;
- TS – total supply = total value of the newly issued shares (number * the current price) + total value of the shares kept (number * the current price).

In the below chapter 3 we will demonstrate the functionality of the introduction of *PM inflation* on the case of particular implementation of the electronic virtual prediction market.

2.3 PM market index

For the continuous monitoring of the volume of trades on the market we proposed the *PM index*. The values of the index *I* are updated once a day and they are calculated according to the following formula (3) which was derived from the algorithm according to which the index of the Prague Stock Exchange was set (Burza, 2009a, 2009b).

$$I(t+1) = I(t) * KT(t+1) / KB(t+1) \quad (3)$$

where:

- $KT(t+1) = M_{curr}(t+1) / M_{curr}(t)$ – coefficient of the change of the market capitalization, time *t* is given in days;
- $KB(t+1) = M_{open}(t+1) / M_{open}(t)$ – coefficient of the change of the basis capitalization, time *t* is given in days;

while:

$M_{curr}(t)$ – current market capitalization of the assets stated on the market as of the day t with regard to their current market price, i.e. the number of shares multiplied by their current price;

$M_{open}(t)$) – market capitalization of the assets stated on the market as of the day t with regard to their issue price, i.e. the number of shares multiplied by their issue price.

An example of the application of the proposed *PM index* for the case of a particular implementation of the electronic prediction market is shown again in the below chapter 3.

3. An example of the functionality of the introduction of the PM inflation for increasing the activity of the market participants

The electronic virtual prediction market under the name *FreeMarket* (FM, 2010) has been implemented and actively operated at the Faculty of Economics of the University of West Bohemia in Pilsen since November 2007. Up to now about 1,200 users have been registered in the system out of which 446 participants of the financial courses registered in the winter semester of the academic year 2009/2010, 326 participants in the year 2010/2011, 209 in the year 2011/2012, and 126 in the year 2012/2013. The decreasing number of the registered participants is caused by the decreasing number of students in the given course. 329 participants actively traded (they bought or sold at least one share) in the winter semester of the year 2009/2010, which is 73.77% of the registered participants for the given year, in the winter semester 2010/2011 it was 197 participants (60.43%) and in the year 2011/2012 it was 143 (68.42%). 2,000 new titles (events) have been issued in the system since the year 2007. The shares (events) are divided into 4 areas: politics, sport, entertainment and economics.

The portfolio of each participant in the *FreeMarket* system is started up by the initial allowance of 10,000 points (money units) upon registration. After launching the system of transferring the points into the study course credits some problems arose that caused the non-functionality of the system, namely in the question of the forecast quality. The main problem consisted especially in the **low activity of the system participants**. The purpose of integrating the electronic virtual prediction market into the evaluated activities of the financial courses is not awarding bonus to a narrow group of the best students but accrediting this activity to the majority of students provided they *actively* participate in trading on the market. Therefore the target value of the points necessary for accrediting this activity cannot be too high, even any active participant who only keeps the originally allotted number of points at the end of the trading period has to be considered successful.

A negative impact of the rules set in this way was the fact that the majority of the market participants (students of financial courses) only registered in the *FreeMarket* and by this act their activity in the system was finished. These students were happy with the allotted 10,000 start-up points and then they had no further need to trade on the market. To remove this situation that was negative from the point of view of the functionality of the virtual market it was necessary to find a motivation tool that would make the passive market participants trade, and, at the same time, to guarantee that the point limit for accrediting the final bonus would not be increased. In principle this motivation tool has to respect all the factors mentioned at the beginning of the subchapter 2.2, i.e. it must not include the requirement for decreasing the allowance of the start-up points; it must not require

increasing the point limit that is necessary for gaining the target bonus at the end of the trading period; it must penalize the non-active market participants; and it must not significantly penalize the active market participants.

The above four conditions lead to the consideration that it is necessary to penalize only those sources of the market participants that remain non-invested on the accounts of such participants. Therefore a sort of "inflation" was introduced into the system whose theoretical description is stated in the subchapter 2.2. In the following text we present the practical implications of the PM inflation in the *FreeMarket* system.

On October 11th, 2009 the first information about the inflation in the *FreeMarket* system was brought into the open. The value of the inflation ratio R_f was published every day. Within a month period the inflation decreased from the initial value of 296% to mostly zero level inflation. The development of the *PM inflation* in the *FreeMarket* system during the fall semester of the year 2009/2010 is illustrated in Figure 1.

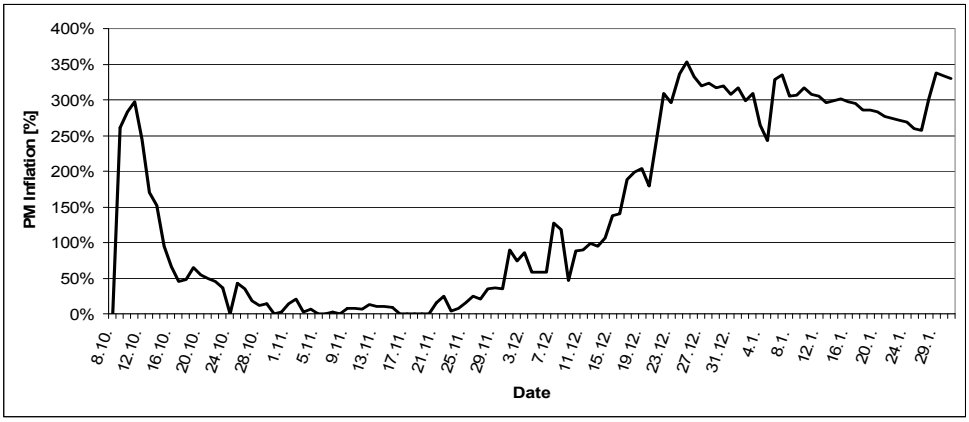

Figure no. 1: PM inflation for the period 10/2009-01/2010
Source: own research

As is obvious from Figure 1 there was a significant decrease of the inflation ratio after publishing the information about introducing inflation into the system. The figure also shows the repeated inflation increase at the end of the semester when the majority of the market participants transferred their free funds into the course credits and finished trading. Although a part of the free funds was withdrawn from the system (i.e. the volume of the free funds (TC) decreases) the influence of the decrease of trading orders (i.e. the total demand (TD) and total supply (TS)) was too strong. New shares were not issued (i.e. the total supply (TS) remains almost constant) and at the same time the new orders occur rarely. Therefore, inflation kept at more or less constant and relatively high level.

The development of the *PM index* in the fall semester 2009/2010 is illustrated in Figure 2. As is obvious the *PM index* is growing at the beginning of the semester and it is rocketing after October 11th, 2009 when the inflation was implemented into the system. The index grew again at the end of the examination period when some students needed to gain further bonus points to sit for the exam. The results show the influence of the *PM inflation* on increasing the volume of trades. The increase of the *PM index*, i.e. the increase of the volume of trades corresponds with the decrease of the *PM inflation* (see Figure 1).

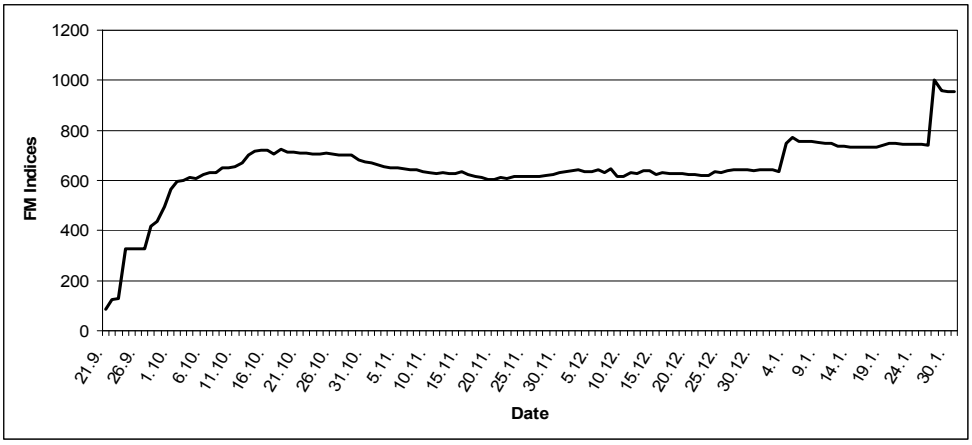

Figure no. 2: *PM index* for the period 10/2009-01/2010
Source: own research

Figure 3 shows the comparison of the development of the volume of trades which is standardized with regard to the number of the active market participants in the academic year 2008/2009 and after that in the year 2009/2010, when inflation was introduced.

As is obvious from Figure 3, in relation to the year 2009 there is a significant increase of the volume of the trades after October 11th, 2009 when PM inflation was introduced into the system and the volume of trades was then, for all the period of the winter semester 2009/2010, significantly higher than in the previous year 2008/2009, when, after the initial trading in the first two weeks of October 2008 trades ceased (the participants reached the required target level of points and were not interested in any more developments on the market).

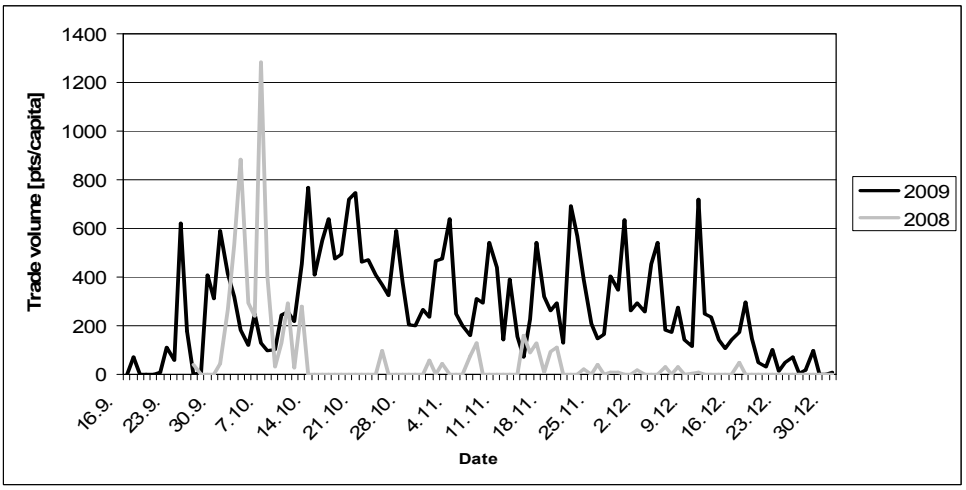

Figure no. 3: Comparison of the standardized volume of trades 9/2008-31/2008 and 9/2009/ - 31/2009
Source: own research

Conclusions

The contribution deals with the topic of the electronic virtual markets that can serve as an alternative tool for collecting information that may be spread among numerous experts. The market participants use the accumulated information for further trading.

In this sense the protection of the market consumer rights can be achieved by safeguarding their primary interests, i.e. by obtaining the most exact information. Flawless functioning of the prediction market is the key prerequisite of this crucial functionality. Participants' activity represented by the volume of trades seems to be an important factor for the right functioning of the market. For this reason the right setting of the system of the motivation supporting participants' activity, which is one of the prediction market quality indicators, seems to be the key factor in the structure of the prediction market. A number of various tools of motivation for increasing trading activities are described in the publicized literature. However, there are situations when in the prediction electronic virtual market these tools are not significantly effective.

In the contribution a new type of the motivation incentive is proposed and described whose principle is based on a certain kind of penalization of the free (not placed on the market) funds (points) of the individual participants. If a market participant wants to keep the amount of the gained funds on the market, he/she has to have them placed in an issued title for all the time period up to the fixed closing of trades and to monitor the market behavior and, if need be, to respond to any new information. The above system of motivation which we call *PM inflation* was implemented in an electronic virtual prediction system called *FreeMarket*, actively operated at the Faculty of Economics of the University of West Bohemia in Pilsen. The article also documents, on the basis of the comparison of analogical time periods and by means of some particular data gained from the system of *FreeMarket*, the impact of the implementation of *PM inflation*, partly without applying this motivation system, and partly with it. It is obvious that the introduction of *PM inflation* into the system positively influences the volume of trades on the market and consequently the market quality. At the same time the authors of the article are aware of the fact that the described tool doesn't solve all the problems related to motivation of PM participants and their aim is to address the problem identified in the used motivation system.

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